**Markivnokov’s Rule**

#### 1) Explain why the reactions shown below, are classified as addition reactions.

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#### Explain why compound A is the major product for the reaction above.

#### 2) For the following reaction:

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#### Describe the product as major or minor and Explain your answer.

**3)** The hydrolysis of but-1-ene results in two different products, explain why.

In your answer you should include:

• identification of the major and minor products

• an explanation of why there are two possible products

• one of the products (either product C or product D) will undergo a reaction to form 2-chlorobutane (product E), identify which product (either product C or product D) and justify your answer

**4)** Compare and contrast the reaction of HCl with but-1-ene, CH2 = CH – CH2 – CH3,

and but-2-ene, CH3 – CH = CH – CH3.

Your answer must include:

• an explanation of the type of reaction occurring

• equations showing the structural formulae of all reactants and products

#### • a justification of why major and minor products form with one of these molecules, but not the other.

**5)** Discuss the reaction of HCl and Cl2 with but-1-ene, CH3– CH2– CH = CH2.

For each reaction you must include:

• an explanation of the type of reaction occurring   
• structural formulae of all organic product(s) formed, including major and minor products, if any.

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